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Agriculture development, food security and nutrition

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Report of the Secretary-General

Summary

It is possible for food production to be sustainably increased so as to feed everyone in the world. However, hundreds of millions of people still do not have the means to access enough food to meet their individual dietary energy needs or their micronutrient requirements.

So that the goals related to food security, nutrition and sustainable agriculture can be achieved, universal social protection floors should be established for all, and efforts must be undertaken to provide the means for sustainable livelihoods and resilience.

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I. Introduction

1. In its resolution 69/240 on agriculture development, food security and nutrition, the General Assembly requested the Secretary-General to report to the Assembly at its seventieth session on new developments related to issues highlighted in that resolution and in the previous resolution on the same subject (Assembly resolution 68/233), including follow-up to the 1996 World Food Summit goal of "eradicate(ing) hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015".

2. Considering the Millennium Development Goal target of "halv(ing), between 1990 and 2015, the proportion of people who suffer from hunger" and the proposed sustainable development goal, which is to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture", the General Assembly in its resolution 69/240 further encouraged member States and all stakeholders to give appropriate consideration to agriculture development, food security and nutrition in the elaboration of the post-2015 development agenda.

3. The present report has been enriched by contributions from the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the International Fund for Agricultural Development (IFAD) and the Coordination Team of the Secretary-General's High-level Task Force on Global Food and Nutrition Security (HLTF), and from numerous stakeholders within the scientific community. The report examines the progress made to date and the challenges that remain in achieving food security and nutrition, sustainably increasing agricultural production and reducing food losses and waste, in accordance with the Secretary-General's Zero Hunger Challenge. It also provides recommendations on how to carry forward the unfinished business of eradicating hunger and malnutrition, as central to the transformative sustainable development agenda for 2030 and as a catalyst for other sustainable development goals.

II. Progress in eradicating hunger and malnutrition and providing access to food

4. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilization and stability.[1]

5. Since 1990-1992, 216 million people have been lifted out of hunger. Within the same time frame, the prevalence of undernourishment in the developing world has fallen from 23.3 to 12.9 per cent. Seventy-two out of the 129 developing countries monitored by FAO — more than half the total — have reached the Millennium Development Goal hunger target of halving the prevalence of undernourishment between 1990 and 2015, and several more countries are likely to do so by the end of 2015.[2] Extreme poverty — which consists in living on less than

[1] See http://ecsw.org/files/global/world-hunger/news/fao-basic-definitions-of-hunger.pdf.

[2] FAO, IFAD and WFP, *The State of Food Insecurity in the World 2015: Meeting the 2015 International Hunger Targets — Taking Stock of Uneven Progress* (Rome, FAO, 2015).

US$ 1.25 per day — in low- and middle-income countries also fell globally between 1981 and 2011, and the Millennium Development Goal poverty target has been met.

6. Instead of a halving of the absolute number of the hungry in developing regions, by 476 million, there was a reduction in their number by only 221 million, just under half the earlier, more ambitious World food Summit goal. Nevertheless, some 29 countries succeeded in at least halving the number of the hungry. This is a significant achievement, as it demonstrates that sustaining rapid progress in reducing hunger is feasible.

7. However, overall progress in reducing hunger has been highly uneven. Almost 795 million people — 1 in 9 worldwide — remain chronically hungry, lacking sufficient food for conducting an active and healthy life. Over 1 billion people are extremely poor, living on less than US$ 1.25 per day.[2] Since 2010-2012, there has been a reduction in the speed with which undernourishment rates have been falling. The global economic and financial crisis and violent conflict within some countries are among the major reasons for this slowdown.[3]

8. All but 15 million of the world's hungry live in developing countries. Some countries and regions have seen only slow progress in reducing hunger, while the absolute number of the hungry has increased in some cases. Marked differences in terms of undernourishment also persist across regions. Some regions, such as Latin America, East and South-East Asia, the Caucasus and Central Asia and Northern and West Africa, have made swift progress. Progress was also recorded in South Asia, Oceania, the Caribbean and Southern and East Africa.

9. In many of the countries that have failed to achieve the international hunger targets, natural and human-induced disasters or political instability have resulted in protracted crises, with increased vulnerability and food insecurity subsisting among large segments of the population. While sub-Saharan Africa has the highest share of the chronically hungry — almost 1 in 4 — South Asia has the highest number, with over half a billion undernourished. Western Asia alone has seen an actual rise in the share of the hungry compared with 1991, while progress in sub-Saharan Africa, South Asia and Oceania has not been sufficient to meet the Millennium Development Goal hunger target by 2015.[2]

Moving from the Millennium Development Goals to the sustainable development goals on food security and nutrition

10. Despite the shortfall in achieving Millennium Development Goal target 1.C and the failure to come close to achieving the World Food Summit goal of halving the number of the hungry, world leaders are now prepared to renew their efforts through sustainable development goal target 2.1, which is to "end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round" by 2030.

11. In line with the recommendations of the Committee on World Food Security, the FAO Statistics Division has compiled food security indicators aimed at capturing

[3] Ibid.; and World Bank, PovcalNet. Available from http://iresearch.worldbank.org/PovcalNet/index.htm. Last updated 9 October 2014.

various aspects of food insecurity.[4] The suite of indicators was first launched in 2012 and then analysed and further developed in 2013, 2014 and 2015 within the context of *The State of Food Insecurity in the World* reports.

12. In collaboration with the World Bank, FAO has developed the software ADePT FSM which aims at improving the quality, consistency and availability of food security statistics extracted from national household surveys encompassing food consumption data. The derived food security statistics are crucial for assessing and monitoring food security at national and subnational levels and informing food security programmes.[5]

13. The latest global estimates from the United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and the World Bank show that among children under five in 2013, 161 million were stunted, 51 million were wasted, 17 million were severely wasted, 99 million were underweight and 42 million were overweight.[6]

14. Sustainable development goal target 2.2 calls upon the global community to "end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons" by 2030. This target reflects the set of six global nutrition targets set in the comprehensive implementation plan on maternal, infant and young child nutrition, as endorsed by the sixty-fifth World Health Assembly in its resolution WHA65.6 of 26 May 2012. Its aims are, by 2025, to:

(a) Reduce by 40 per cent the number of children under 5 who are stunted (baseline = 162 million, target = 100 million);

(b) Achieve a 50 per cent reduction in the rate of anaemia in women of reproductive age (baseline = 29 per cent, target = 15 per cent);

(c) Achieve a 30 per cent reduction in the rate of infants with low birth weight (baseline = 15-20 per cent or approximately 20 million, target = approximately 14 million);

(d) Ensure that there is no increase in the rate of children who are overweight (as of 2012, 7 per cent of all children were overweight);

(e) Increase to at least 50 per cent the rate of exclusive breastfeeding in the first six months (baseline = 38 per cent, target = $\geq$ 50 per cent);

(f) Reduce and maintain childhood wasting to less than 5 per cent (baseline data = 8 per cent).

15. WHO and partners have created an online tracking tool to help countries adapt the six global nutrition targets to national contexts and monitor indicator progress. The interactive platform allows users to produce country indicator profiles on current status and required progress, explore alternative rates of change and their

[4] FAO Statistics, Food security indicators. Available from http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.Vclrc4tbvll. Last updated 9 July 2015.

[5] See http://www.fao.org/economic/ess/ess-fs/fs-methods/adept-fsn/en/.

[6] UNICEF, WHO and World Bank, Levels and trends in child malnutrition: UNICEF-WHO-The World Bank joint child malnutrition estimates (New York, Geneva and Washington, D.C., 2014). Available from http://data.unicef.org/resources/2013/webapps/nutrition#.

impact (what-if analysis), map the latest target indicator estimates globally and for country groups, access summary reports on the six nutrition targets and visualize global target status and trends.[7]

16. The sustainable development goals also comprise at least six goals that address the basic, underlying and immediate causes of malnutrition, with an additional 18 targets that are directly or indirectly related to nutrition outcomes. Reaching sustainable development goal 2 and the interlinked targets of other goals will be critical in achieving a shift to resilient, diverse and productive agriculture and food systems which are environmentally, socially and economically sustainable. For example, target 12.3, which is "(b)y 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses", and target 15.3, which is "(b)y 2020, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world", are directly relevant to agriculture development, food security and nutrition.

17. Lessons learned from the Millennium Development Goals efforts show that, while economic growth is an important factor for success in the fight against hunger, it is often insufficient by itself to guarantee access to food. Growth needs to be accompanied by strong political will to end hunger, and special action may be needed to ensure that growth benefits the poor.

18. A joint FAO, IFAD and WFP report published in June 2015[8] estimates that investments of US$ 267 billion per year are needed to end hunger. This implies, on average, an additional US$ 160 annually for each person living in extreme poverty over the next 15 years. The total includes investments in production and productivity-enhancing measures and social protection. The combination would allow hunger to be ended immediately and also create the conditions necessary for the most vulnerable to improve their livelihoods and sustainably escape extreme poverty.

19. Owing to multiple social benefits, including positive impacts on welfare across the rural-urban continuum, economic growth originating in the agricultural sector is at least twice as effective in reducing poverty as growth triggered by any other sector.[9] Thus, a stand-alone global goal on food security, nutrition and sustainable agriculture, coupled with equally ambitious means of implementation, has great transformative potential.

20. In order for the commitment to transform the way in which food is produced and consumed to be fully realized, funding and implementation partnerships will need to play a significant role. Those partnerships must be inclusive, integrated, transparent and accountable if they are to address the key challenges of sustainable development. Furthermore, continued and enhanced collaboration and coordination among Member States, the organizations of the United Nations system, in particular

[7] WHO, Nutrition, global targets tracking tool, 2015. Available from http://www.who.int/entity/nutrition/trackingtool/en/index.html.

[8] FAO, IFAD and WFP, *Achieving Zero Hunger: The Critical Role of Investments in Social Protection and Agriculture* (Rome, FAO, 2015). Available from http://www.fao.org/3/a-i4777e.pdf.

[9] World Bank, *World Development Report 2008: Agriculture for Development* (Washington, D.C., 2007), p. 6. Available from http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf.

FAO, IFAD and the WFP, and non-State actors will be critical to addressing the root causes of poverty and hunger.

21. Public and private investments should be in line with the Principles for Responsible Investment in Agriculture and Food Systems,[10] endorsed by the Committee on World Food Security on 15 October 2014, and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security,[11] as recognized in the Addis Ababa Action Agenda of the Third International Conference on Financing for Development (General Assembly resolution 69/313, annex), held from 13 to 16 July 2015.

22. Means of implementation and deliverables, including a financing framework, a redefined global partnership for development, and enabling environments, and a technology facilitation mechanism, have been defined in the section on means of implementation and the global partnership of the 2030 agenda for sustainable development: transforming our world (in particular under targets 2.*a*, 2.*b* and 2.*c*), to be considered at the United Nations summit for the adoption of the post-2015 development agenda (25-27 September 2015, New York), and in the Addis Ababa Action Agenda (in particular in paras. 13, 83, 108, 121 and 123).

III. Global initiatives and actions in support of the 2030 sustainable development agenda

Moving towards zero hunger

23. In recent years, Member States have raised their ambitions regarding hunger. In 2003, at Maputo, the countries of Africa launched the Comprehensive Africa Agriculture Development Programme (CAADP), a major policy framework for agricultural transformation. In 2014, at Malabo, at a summit marking 10 years of the CAADP process, Heads of State and Government of the African Union adopted the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, committing to ending hunger in Africa by 2025 (sect. III.3). In 2005, Heads of State and Government meeting at the Latin American Summit on Chronic Hunger, held in Guatemala, committed to end hunger throughout the region by 2025 by launching the Hunger Free Latin America and the Caribbean Initiative. This commitment has been reaffirmed many times, most recently in the 2015 Summit of the Community of Latin American and Caribbean States. Similar commitments have been undertaken by nations and subregional organizations in Asia. Sustainable development goal 2 thus expresses the will of the global community to end hunger by no later than 2030.

24. Those involved in these developments were galvanized by the launch of the Zero Hunger Challenge by the Secretary-General at the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, in 2012. The Zero Hunger Challenge unites five elements which, taken together, will end hunger, eliminate the worst forms of malnutrition and build inclusive and sustainable food

[10] Available from http://www.fao.org/fileadmin/templates/cfs/Docs1314/rai/CFS_Principles_Oct_2014_EN.pdf.

[11] See FAO, document CL 144/9 (C 2013/20), appendix D. Available from http://www.fao.org/fileadmin/templates/cfs/Docs1112/VG/VG_Final_EN_May_2012.pdf.

systems in our lifetimes. It brings together different stakeholders to deliver on this common vision. The fact that the Challenge has gained considerable traction and has established a considerable profile within the global development community has led to a groundswell of discussion and action.

25. The Zero Hunger Challenge has stimulated national political support for an end to hunger. To date, 137 countries have committed to work towards zero hunger. Local, national, regional and international bodies and non-State actors are also part of this effort. Indeed, 47 non-State actors and thousands of individuals have declared their commitment to zero Hunger. In the Secretary-General's High-level Task Force on Global Food and Nutrition Security, heads of United Nations funds and programmes, along with the Organization for Economic Cooperation and Development (OECD) and the World Trade Organization, are working together to develop coordinated support for the zero hunger vision as it has been embedded in the new sustainable development goals, especially goal 2 and its interlinked targets.

26. The Zero Hunger Challenge has inspired action at country level and ensured that food and nutrition security and sustainable agriculture have remained high in the global development agenda. Given the comprehensive and universal nature of the zero hunger vision, it has the potential to pay dividends across the sustainable development goals framework. The Secretary-General is committed to continuing to use the Zero Hunger Challenge to mobilize the political leadership and coordinated action needed to deliver sustainable, inclusive and resilient food and nutrition systems within the context of the broader sustainable development agenda for 2030.

Committee on World Food Security

27. The Committee on World Food Security is the foremost inclusive international platform dealing with food security and nutrition issues. This unique multi-stakeholder platform makes the Committee an excellent example of how reformed governance structures can increase their deliberative capacity while being inclusive, participatory and accountable, and helping stakeholders to find the common ground and policy convergence necessary to meet today's food security and nutrition challenges.

28. At its fortieth session held in October 2013, the Committee on World Food Security acknowledged that it should play a leading role in the implementation of the post-2015 development agenda, on aspects related to its core mandate.

29. The establishment of an open-ended working group to analyse how the Committee on World Food Security can support the implementation of the sustainable development goal targets related to sustainable agriculture, food security and nutrition will be proposed for endorsement at the forty-second session of the Committee. At the same session, the Committee will consider also endorsing a global strategic framework for food security and nutrition (GSF 2015) which incorporates the policy recommendations on Food Losses and Waste in the Context of Sustainable Food Systems, Sustainable Fisheries and Aquaculture for Food Security and Nutrition, and the Principles for Responsible Investment in Agriculture and Food Systems, as endorsed at the Committee's forty-first session in 2014.

30. Consultations and negotiations are also ongoing to elaborate a framework for action for food security and nutrition in protracted crises. The final negotiated

version of this framework will be presented for endorsement at the forty-second session of the Committee.

31. The implementation of these voluntary agreements is the primary responsibility of national Governments, with the support of the United Nations system, non-State actors and other regional and international bodies.

Second International Conference on Nutrition and a General Assembly resolution on a decade of action on nutrition

32. The Second International Conference on Nutrition, co-organized by FAO and WHO, was held at FAO headquarters in Rome in November 2014. This high-level intergovernmental conference focused global attention on malnutrition in all its forms — undernourishment, undernutrition, including micronutrient deficiencies, and overweight and obesity. The Conference brought together a total of 164 members of FAO and WHO. More than 2,200 individuals participated, including Heads of State and Government, world-renowned experts and representatives of civil society and the private sector.

33. The Conference was convened to (a) review progress made since the 1992 International Conference on Nutrition), respond to new challenges and opportunities, and identify policy options for improving nutrition; (b) bring food, agriculture, health and other sectors together to enable them to align their sectoral policies for improving nutrition in a sustainable manner; (c) propose adaptable policy options and institutional frameworks that can adequately address major nutrition challenges in the foreseeable future; (d) encourage greater political and policy coherence, alignment, coordination and cooperation among food, agriculture, health and other sectors; (e) mobilize the political will and resources needed to improve nutrition; and (f) identify priorities for international cooperation on nutrition in the near and medium terms.

34. Two outcome documents — the political Rome Declaration on Nutrition (WHO, document EB 136/8, annex I) and the Framework for Action (WHO, document EB 136/8, annex II), a voluntary technical guide of 60 recommendations on how to implement the Declaration — were endorsed by participating Governments at the Second International Conference on Nutrition, committing world leaders to the establishment of national policies aimed at eradicating malnutrition in all its forms and transforming food systems so as to make nutritious diets available to all. The outcome documents of the Second International Conference recognize that food systems have a fundamental role to play in promoting healthy diets and improving nutrition, while reaffirming that health, water and sanitation systems must be strengthened simultaneously to end malnutrition.

35. A vital challenge for global nutrition efforts is to strengthen food, health and sanitation systems while also addressing underlying causes, poverty, discrimination and vulnerability, which contribute materially to malnutrition in all its forms. In the Rome Declaration, Ministers and Representatives of the Members of FAO and WHO assembled at the Second International Conference recommended to the General Assembly "to consider declaring a decade of action on nutrition from 2016 to 2025 within existing structures and available resources". On 6 July 2015, the Assembly adopted resolution 69/310, in which it welcomed the Rome Declaration

and the Framework for Action, and decided to further consider outstanding issues relating to that resolution at its seventieth session.

Comprehensive Africa Agriculture Development Programme/ New Partnership for Africa's Development

36. At the twenty-third ordinary session of the African Union Assembly, held in Malabo on 26 and 27 June 2014, Heads of State and Government of the African Union reaffirmed the Comprehensive Africa Agriculture Development Programme (CAADP) under the New Partnership for Africa's Development (NEPAD) as Africa's key agriculture agenda. In its first decade (2003-2013), CAADP had achieved important gains and provided vital lessons and a foundation for the next decade. By the Malabo Declaration, member States' commitments to implementing a number of essential policy reforms directed towards ending hunger and cutting poverty in Africa in half by 2025 were expanded.

37. To meet these goals, African leaders reaffirmed their intention to devote 10 per cent of their national budgets to agricultural development and agreed to targets such as doubling agricultural productivity, halving post-harvest loss and bringing stunting down to 10 per cent across Africa. The Sustaining CAADP Momentum Results Framework enables Africa to benchmark advances in agricultural performance so as to ensure that progress is being made and monitored continuously. The CAADP Results Framework is an integral part of the African Union Agenda 2063. The CAADP Results Framework 2015-2025 outlines agriculture's contribution to economic growth and inclusive development, increased incomes, improved food and nutrition security, economic opportunities and prosperity, and increased resilience.

Cost of hunger in Africa: the social and economic impact of child undernutrition

38. The Cost of Hunger in Africa is an ongoing study which began in 2010.[12] African Heads of State and Government endorsed the study in 2014 and in the Malabo Declaration urged all African Union member States to consider participation in the study. The Malabo Declaration also requests the African Union Commission, WFP and the Economic Commission for Africa (ECA) and other development partners to expedite the successful completion of the study in the remaining countries.

39. Results of the study as carried out in the first-phase countries (Egypt, Ethiopia, Rwanda, Swaziland and Uganda) indicate the substantial costs that can be attributed to undernutrition while revealing some patterns across participating countries. In all five countries, the highest costs come from the working hours lost due to mortality (countries with high mortality rates show high costs). The second highest costs come from potential productivity lost due to reduced schooling as a result of undernutrition, and from reduced productivity as a result of stunting. Total costs range from 2 to 16 per cent of gross domestic product (GDP).

[12] See http://www.costofhungerafrica.com.

40. Furthermore, some policy implications have been identified. Key findings include the following:

- Undernutrition places an extremely high burden on and further constrains health systems and families through the increased demand for services, e.g., hospitalization and care. In all country situations analysed, the families, and not the health system, bear the majority of the costs.
- Nutrition is a major factor responsible for increasing grade repetition and dropping out in countries with poor educational achievement levels.
- The loss of human capital due to the impact of undernutrition on child mortality rates generates the highest costs to society.
- Addressing child undernutrition, and therefore reducing the barriers to increased education, will facilitate the transition of Africa's societies towards greater urbanization and enable Africa to be better prepared to harness the demographic dividend.

41. The Cost of Hunger in Africa study is contributing to a tipping of the scale towards securing commitment to improved nutrition at the highest political levels on the continent. As a consequence of the study, an additional commitment was made to establish more aggressive goals in the reduction of stunting and to set a target of reducing growth retardation in children to 10 per cent and underweight children to 5 per cent, by the year 2025. This undertaking, known as Africa's Renewed Initiative for Stunting Elimination I — is championed by the African Union Commission.

Global Nutrition Report

42. The *2014 Global Nutrition Report: Actions and Accountability to Accelerate the World's Progress on Nutrition*[13] was launched during the Second International Conference on Nutrition and subsequently presented in several other venues globally. The Report provides a comprehensive overview and analysis of global malnutrition, including the measures being taken to combat it, and also highlights key gaps. The Global Nutrition Report targets civil society organizations, donors, Governments, the business sector, researchers, media and engaged citizens and is intended as a means of empowering nutrition champions at the national level to better inform policy decisions and to strengthen the case for increased resources. The Report is produced by an Independent Expert Group which includes United Nations organizations active in nutrition programming and is led by the International Food Policy Research Institute. The Global Nutrition Report secretariat is hosted by the Institute of Development Studies, Brighton, United Kingdom of Great Britain and Northern Ireland.

Scaling Up Nutrition movement updates

43. The Scaling Up Nutrition movement is a country-led movement of multiple sectors and multiple stakeholders, united in their mission to defeat malnutrition. This unique movement has mobilized Governments, civil society, the United

[13] Washington, D.C., International Food Policy Research Institute, 2014.

Nations system, donors, businesses and scientists to illuminate the importance of good nutrition and to collectively end malnutrition. As of July 2015, 55 countries had committed to scaling up nutrition.

44. The 55 countries leading the Scaling Up Nutrition movement are demonstrating that building an enabling political environment is critical for ending malnutrition. Nutrition transformations are supported by high-level political commitment, effective coordination of actors, having the right evidence-based policies in place, aligning nutrition actions with a set of common results and increased resources. Countries in the movement focus on implementing nutrition-specific and nutrition-sensitive interventions in the context of acknowledging that sectors such as agriculture, water/sanitation, education, social protection, public health and women's empowerment are vital for comprehensively ending malnutrition. In 2015, countries leading the movement continued to build the case for investment in nutrition, acknowledging its fundamental importance for future health and prosperity, and a number of those countries are reporting significant reductions in malnutrition. The Movement continues to provide a unique platform for sharing evidence, impact and effective practices.

Developmental approaches to ending hunger, malnutrition and poverty

45. The role of social protection is addressed in *Achieving Zero Hunger: The Critical Role of Investments in Social Protection and Agriculture* launched by FAO, IFAD and WFP in July 2015, as noted in paragraph 20 above. It provides new data on the total investment towards ending hunger and rural poverty by 2030. The importance of social protection not only in ending hunger but also in helping the rural poor escape from poverty is the subject of the forthcoming *State of Food and Agriculture* report issued by FAO. "Social protection and agriculture" is also the theme of World Food Day 2015.

46. School feeding and possibilities for direct purchases from family farming are examined in a new FAO study entitled *School Feeding and Possibilities for Direct Purchases from Family Farming: Case Studies from Eight Countries*.[14] The study describes a developmental approach to school feeding, including eight case studies that reveal how school feeding programmes in Latin America and the Caribbean can be used to stimulate both local production of food, increasing demand and incomes for family farmers, and local markets, while also encouraging dietary diversification and education. This innovative approach is a concrete example of how a combination of traditional social protection programmes and productive support can lead to improved results in food security and nutrition and also contribute to local development.

[14] Santiago, FAO, 2015. See http://www.fao.org/3/a-i3413e.pdf.

IV. Progress in sustainably increasing agricultural productivity

Ensuring support and access to resources for smallholder and family farmers

47. It has been widely recognized that family farming is key for food and nutrition security, natural resource management and local economies. Therefore, it is essential that the development and implementation of specific food security, nutrition and agricultural policies, programmes, strategies and partnerships include family farmers.

48. The International Year of Family Farming, which was celebrated in 2014, has led to increased political support for family farming and family farms around the world. The evidence base for family farming has been significantly strengthened by the ongoing work of FAO on family farming, especially through the Family Farming Knowledge Platform. The importance of identifying definitions and typologies of family farming and the need to further develop key analyses and indicators for assessing the status of and trends in different types of family farming have been highlighted.

Protection of soil and land resources

49. The key role of soils and land in sustainable development was recognized by the international community in the outcome document of the United Nations Conference on Sustainable Development, in which Heads of State and Government and high-level representatives agreed to strive to achieve a land degradation-neutral world (para. 206), through the declaration of 2015 as the International Year of Soils (General Assembly resolution 68/232) and in the 2030 agenda for sustainable development.

50. To ensure the successful protection of the natural resource base for food security, a broad understanding of and a coordinated approach to the sustainable management of soil resources around the world is necessary. Such an approach can be achieved only through a truly inclusive process which builds upon current scientific knowledge related to sustainable land and soil management, and on traditional practices and knowledge.

51. The Land Degradation Neutrality Fund, launched under the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Especially in Africa,[15] in 2015, is an important initiative aimed at supporting the transition to land degradation neutrality through land rehabilitation.

V. Progress in ensuring that all food systems are sustainable

52. Data availability on agricultural productivity (e.g., for measuring target 2.3 of the post-2015 development agenda) and application of sustainable agricultural practices (target 2.4) is insufficient in many rural areas in developing countries.

[15] United Nations, *Treaty Series*, vol. 1954, No. 33480.

53. In the context of the International Year of Family Farming (2014), *The State of Food and Agriculture 2014* estimated that more than 90 per cent of the 570 million farms in the world are considered to be family farms.[16] The contribution of these farms to local, regional and global food security is of vital importance. Swaminathan (2014) highlights how the diversified production systems that are encompassed by family farming constitute a tool for achieving food and nutrition security and ecosystem service conservation.[17] *The State of Food and Agriculture 2012* demonstrated that farmers are themselves the largest investors in agriculture and must be central to any investment strategy.[18]

Fisheries

54. Along similar lines, in the fisheries sector, small-scale producers play a key role in ensuring food security and eradicating poverty. However, the overall development of the fisheries sector, and increased pressure from other sectors (including energy, mining, industry and infrastructure development) which often exert stronger political or economic influence, have contributed to a decline in aquatic resources and threats to aquatic habitats, ecosystems and small-scale fisheries.

55. For marine and inland fisheries, the main issue is to sustainably manage fish stocks and ecosystems, within a dynamic environment subject to climate fluctuations and change, in such a way as to maximize harvests without compromising future yields and ensure the fair distribution of benefits. Marine and inland fisheries are also confronted with competition from other activities (economic and recreational) and with various environmental risks.

56. Changes in global and regional climate will interact with many other factors that govern the distribution and ecology of resources and influence the capacity and performance of the marine fisheries sector with respect to meeting future consumption rates. Unlike most terrestrial animals, aquatic animal species are poikilothermic (cold-blooded) and changes in habitat temperatures will more rapidly and significantly influence their metabolism, growth, reproduction and distribution, with a corresponding stronger impact on distribution and productivity of fishing and aquaculture. The interconnectedness of aquatic systems allows fish species to migrate with shifts in ecosystems conditions. Expected changes in climate patterns and extreme events, sea-level rise, melting of glaciers, ocean acidification and changes in river flows are expected to result in significant changes across a wide range of aquatic ecosystems with consequences in many areas for fisheries and aquaculture.

Agroecology

57. As a farming and landscape approach to improving the resilience and sustainability of food systems, agroecology is gaining momentum and the support of

[16] FAO, 2014. *The State of Food and Agriculture 2014: Innovation in Family Farming* (Rome, 2014).

[17] M. S. Swaminathan, "Zero hunger", *Science*, vol. 345, No. 6196 (1 August 2014), p. 491.

[18] FAO, *The State of Food and Agriculture 2012: Investing in Agriculture for a Better Future* (Rome, 2012).

an increasingly wide range of experts within the scientific community, international organizations and countries. There is a need to further strengthen the evidence base of agroecology, especially regarding successful scale-up and scale-out of agroecological initiatives.

58. Agroecology has been included in national or subnational policies in several countries in Latin America and Europe. Countries and regional bodies such as the Community of Latin American and Caribbean States and the African Union are encouraged to implement public policies designed to support the adoption of agroecological practices by making reference to agroecology and sustainable agriculture in national strategies and action plans.

59. In September 2014, FAO held the first International Symposium on Agroecology for Food Security and Nutrition. Based on the success of the Symposium, FAO committed to facilitating three regional meetings in 2015, in Latin America, Africa and Asia. Implementation of agroecology in Africa is expected to make further headway with the implementation of the new Ecological Organic Agriculture Initiative for Africa. The goal of the that initiative is to mainstream ecological organic agriculture into national agricultural systems by 2025.

60. Owing to their capacity to enable the absorption of more than 100 per cent of the total carbon dioxide (CO_2) produced annually, agroecological, organic and regenerative practices could actively contribute to greenhouse gas reduction.[19] Recently launched by the Ministry of Agriculture of France, the 4 Per mil Initiative: Soils for Food Security and Climate is an important agroecological programme aimed at increasing soil fertility through carbon sequestration in agricultural soils and thereby enhancing food security and adapting agriculture to climate change.[20]

61. To cope with increased pesticide resistance, the use of herbicides has increased substantially over the last few years[21] on the back of a fivefold increase in pesticide expenditures from 1960 to 2008.[22]

Reducing losses and waste

62. Sustainable agriculture and food systems will be vital to eradicating poverty, ending hunger and achieving sustainable development. The June 2014 report of the High-level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, entitled "Food loss and waste in the context of sustainable

[19] Rodale Institute, "Regenerative organic agriculture and climate change: a down-to-earth solution to global warming" (Kutztown, Pennsylvania, 2014). Available from http://rodaleinstitute.org/assets/RegenOrgAgricultureAndClimateChange_20140418.pdf.

[20] France, Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt, "COP21: '4 pour 1000' — un programme de recherche international sur la séquestration du carbone dans les sols". Available from http://agriculture.gouv.fr/cop21-4-pour-1000-un-programme-de-recherche-international-sur-la-sequestration-du-carbone-dans-les.

[21] Charles M. Benbrook, "Impacts of genetically engineered crops on pesticide use in the U.S.: the first sixteen years", *Environmental Sciences Europe*, vol. 24. Available from http://www.enveurope.com/content/24./1/24.

[22] Jorge Fernandez-Cornejo and others, "Pesticide use in U. S. agriculture: 21 selected crops, 1960-2008", USDA Economic Information Bulletin, No. 124 (Washington, D.C., U.S. Department of Agriculture, Economic Research Service, May 2014).

food systems", demonstrated that a food systems perspective is necessary which "gathers all elements ... and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socioeconomic and environmental outcomes".

63. Existing solutions for reducing losses are dependent on increased use of energy for preservation, which often might not be feasible and must be weighed against the benefits of reduced food loss and waste[23] (including reduced losses of water, land, energy and other natural resources used for producing food that is not consumed).[24] A leading cause of food loss and waste is the standardization of products offered to consumers[25] coupled with unsustainable consumer behaviour,[26] further promoted by the low cost of food relative to income in developed countries. In low-income countries, solutions must include the main sectors of small- and medium-scale fisheries, agricultural production and processing.[27] Throughout all food chains, inadequate storage and poor management of perishable products, coupled with poor transportation infrastructure and inadequate information about market demand and prices, continue to constitute a major challenge.[25] Another challenge lies in the fact that solutions are likely to be adopted only if they are deemed profitable or cost-effective by supply chain actors.[23]

64. Investments in pre- and post-harvest loss reduction should take precedence over increases in production. Possible solution areas that are being investigated include that of true costing, which includes externalities in product pricing.[28]

65. Food is lost during all stages along supply chains of capture fishery products, during capture operations, handling and processing, storage, packaging, distribution and consumption. Loss of fishery products reduces the sustainable production of fishery resources, threatening the long-term capacity to provide food, and reduces economic opportunities for the capture fisheries sector. Discards and, to a lesser extent, by-catch, account for significant food loss and wastage in the world's fisheries. Benchmarking and reporting on fisheries by-catch and discards constitute an important step towards the improved utilization of fish and fishery products, reduction of wastage and more effective management of fisheries resources).[29]

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[23] FAO, *Toolkit: Reducing the Food Wastage Footprint* (Rome, 2013).

[24] Ibid.; and FAO, *Food Wastage Footprint: Impacts on Natural Resources — Summary Report* (Rome, 2013).

[25] HLPE, "Food losses and waste in the context of sustainable food systems: a report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security" (Rome, 2014).

[26] *Food Wastage Footprint: Impacts on Natural Resources — Summary Report*; and "Food losses and waste in the context of sustainable food systems".

[27] *Toolkit: Reducing the Food Wastage Footprint*; and "Food losses and waste in the context of sustainable food systems".

[28] IFOAM EU Group, "Agricultural externalities: the true price of a product" (Brussels, International Federation of Organic Agriculture Movements EU Group, 2010). Available from http://www.ifoam-eu.org/sites/default/files/page/files/ifoameu_policy_externalities_factsheet_2010.pdf. Author: Lena Wietheger.

[29] FAO, *International Guidelines on Bycatch Management and Reduction of Discards* (Rome, 2011).

Halt biodiversity loss

66. The Crop Trust is an important initiative and partnership which works towards safeguarding global crop diversity. A decline in the population of animal pollinators would have devastating effects on food production and food security, including increases in micronutrient deficiencies, such as vitamin A.[30] Unless policies to promote restoration of refuges, land-use heterogeneity, increased plant diversity and pollinator safety through reduced application of pesticides are implemented, "the ongoing loss of wild insects is destined to compromise agricultural yields worldwide".[31]

67. New estimates (which may be low) of current rates of extinction are about 1,000 times the background rate of extinction.[32] Moving beyond modelling changes in biodiversity, the TEEB study for agriculture and food is currently addressing the issue of translation of the economic value of their ecosystem services. Led by the United Nations Environment Programme (UNEP), TEEB is a global initiative aimed at making "nature's values visible". The goal of TEEB is ultimately to mainstream the values of ecosystem services into decision-making in the agricultural sector.[33]

68. An additional challenge that has advanced to the forefront is the pressures exerted on small-scale farming stemming from the provisions of the 1991 Act of the International Union for the Protection of New Varieties of Plants. Restrictions on seed management systems can lead to a loss of biodiversity and in turn harm the livelihoods of small-scale farmers "as well as weaken the genetic base on which we all depend for our future supply of food".[34] As smallholders rely predominantly on informal seed systems, the restriction imposed by the Act on the use of farm-saved seeds and the prohibitions on their exchange and sale cause considerable concern.[35] Although only a handful of developing countries have implemented plant variety protection, small-scale farmers and other stakeholders are often excluded from participation in developing and reforming plant variety protection laws.

69. In aquaculture (fish farming), the major part of biodiversity is found among wild relatives of farmed species; however, it is threatened by habitat loss and degradation, introduction of invasive species (often by aquaculturists), unsustainable fishing practices and climate change.[36] That biodiversity provides not only the

[30] Matthew R. Smith and others, "Effects of decreases of animal pollinators on human nutrition and global health: a modelling analysis", *Lancet*, vol. 6736, No. 15 (2015), pp. 1-9.

[31] Lucas A. Garibaldi and others, "Wild pollinators enhance fruit set of crops regardless of honey bee abundance", *Science*, vol. 339, No. 6127 (29 March 2013), pp. 1608-1611.

[32] S. L. Pimm and others, "The biodiversity of species and their rates of extinction, distribution, and protection", *Science*, vol. 344, No. 6187 (30 May 2014).

[33] The Economics of Ecosystems and Biodiversity (TEEB) for Agriculture and Food study. See concept note (27 February 2014); information brochure (May 2015) and "TEEB for Agriculture & Food: towards a global study on the economics of eco-agri-food systems" (15 May 2015). Available from www.teebweb.org/agriculture-and-food/.

[34] UNDP, "Towards a human rights-based approach to food security: a self-assessment tool to achieve balanced plant regimes — facilitating farmers' participation to ensure sustainable access to food" (New York, August 2012). Available from www.undp.org/poverty. Cited in Berne Declaration.

[35] Berne Declaration, "Owning seeds, accessing food: a human rights impact assessment of UPOV 1991 based on case studies in Kenya, Peru and the Philippines" (Zurich, Switzerland, October 2014). Authors: Thomas Braunschweig and others.

[36] FAO, *The State of World Fisheries and Aquaculture* (Rome, 2010).

genetic resources for traditional breed improvement in aquaculture, but also ecosystem services of direct relevance to the broader agriculture sector, such as biological pest control and nutrient cycling.[37]

70. The FAO Blue Growth Initiative in support of food security, poverty alleviation and sustainable management of living aquatic resources aims at building the resilience of coastal and riparian communities and restoring the productive potential of oceans and wetlands by promoting international coordination towards strengthening responsible management regimes and practices which can reconcile economic growth and food security with the conservation of oceans and the ecosystems that they sustain. This is achieved by focusing on four components: capture fisheries, aquaculture, ecosystem services, and trade and social protection of coastal communities.

2030 agenda for sustainable development

71. The 2030 agenda for sustainable development sets out a road map towards the achievement of ambitious and universal goals by the global community. The road map charts a path towards greater equity, through addressing inequality and ensuring that no one is left behind. Ending hunger and malnutrition will be at the heart of this agenda. The five elements of the Secretary-General's Zero Hunger Challenge have been reflected in the sustainable development goals, as decided by Member States.[38]

72. Given the universal and integrated nature of the sustainable development goals, investing in sustainable agriculture, food security and nutrition will pay dividends across a range of other goals such as poverty reduction, gender and climate change. While people living in rural areas constitute the largest proportion of those living in extreme poverty, investment in agriculture has been shown to be twice as effective in reducing poverty as investment in any other sector. To deliver on the promise of the 2030 agenda for sustainable Development, sustainable food systems — which not only feed and nourish people, but also deliver increased income and sustainable rural livelihoods — will be needed.[39]

73. The growing population will place additional pressure on the ability of current food systems to feed the world; this pressure will be compounded by the effects of climate change on smallholder farmers and agriculture in general. New approaches focused on how to create sustainable and resilient food systems that address the issues of climate change and food and nutrition security are needed. This may

[37] Cecilia M. Holmlund and Monica Hammer, "Analysis: ecosystem services generated by fish populations", *Ecological Economics*, vol. 29 (1999), pp. 253-268.

[38] Open Working Group of the General Assembly on Sustainable Development Goals, "Open Working Group proposal for Sustainable Development Goals", goal 2, targets 2.1-2.4, and goal 12, target 12.3. Available from https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1579&menu=1300. Full report of the Open Working Group has been issued as document A/68/970.

[39] World Bank Group, "Ending poverty and hunger by 2030: an agenda for the global food system", 2nd ed. (Washington, D.C., 2015).

include smart investments in smallholder adaptation which can deliver important mitigation co-benefits.[40]

74. The Addis Ababa Action Agenda of the Third International Conference on Financing Development underlines that investing in agriculture, rural development, and food and nutrition security are of central importance to the success of the 2030 agenda for sustainable development (para. 13). The Zero Hunger Challenge provides a ready-made platform for accelerating advocacy, action and accountability centred around sustainable, inclusive and resilient food systems. The Secretary-General will continue to pursue the Zero Hunger Challenge at the highest political level in order to mobilize leaders and individuals, civil society, communities and the private sector in support of the implementation of this new agenda.

75. The United Nations must stand at the ready and become fit for purpose so as to be able to deliver on a transformative agenda that is relevant, innovative, agile, inclusive, coordinated and results-oriented. In the area of food security, nutrition and sustainable agriculture, the Secretary-General will be assisted by the High-level Task Force on Global Food and Nutrition Security in respect of ensuring an integrated United Nations system response in support of member States' efforts to end hunger and malnutrition once and for all.

VI. Recommendations

76. There is widespread recognition that if increasingly complex challenges are to be faced and the sustainable development goals achieved, then significant efforts will be needed to rethink and reform policymaking as it is currently conducted. In embracing this process, many countries are revisiting their own programmes and seeking means to combine actions carried out in different areas such as health, agriculture, education, gender equality, nutrition, sanitation, water and energy in order to achieve better and more synergistic results. How to effect this transition, however, and overcome the "silo mentality" remains a puzzle to many national decision makers.

77. Lessons learned from different national and regional experiences in promoting food security and nutrition point to the following elements as being common to most successful strategies:

- Scaled-up, pro-poor investment
- Political commitment
- Social participation, especially including smallholder and women farmers
- The combination of productive support and social protection, and linkage between programmes and actions across different sectors

78. In this context, we must emphasize the importance of cooperation among nations, in particular the exchange of experiences through South-South cooperation. Many developing countries face similar agricultural development challenges, and solutions that already exist can inspire positive developments with respect to sustainably increasing agricultural yields, ensuring food security and promoting good nutrition.

[40] IFAD, *The Mitigation Advantage: Maximizing the Co-Benefits of Investing in Smallholder Adaptation Initiatives* (Rome, 2015).